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EXAMINER

MUTSCHLER, BRIAN L

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 06/12/2003

23

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/390,501

Applicant(s)

BATZ ET AL.

Examiner

Brian L. Mutschler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Comments

1. The indicated allowability of claims 3 and 5-9 is withdrawn in view of the newly discovered reference(s) to Cancellieri et al. (U.S. Pat. No. 4,192,729), Hsieh et al. (U.S. Pat. No. 5,405,518), Ishida (U.S. Pat. No. 5,447,615) and various references which appear to have a common assignment at the time the invention was made and are valid as references under the judicially-created doctrine of obviousness-type double patenting. Rejections based on the newly cited reference(s) follow.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cancelleri et al. (U.S. Pat. No. 4,192,729) in view of Hsieh et al. (U.S. Pat. No. 5,405,518).

Regarding claim 3, Cancelleri et al. disclose an apparatus for forming interconnects on an integrated circuit (microelectronic workpiece) using an electrochemical process, wherein the apparatus comprises an anode (electrical contact) **27** for providing an electrically conductive connection between power source and the workpiece and a O-ring (sealing member) **37** that protects the anode **27** from the electrolyte (fig. 3; col. 4, lines 3-14). The O-ring **37** has an outer portion (rim portion) proximate the anode **27** that seals against the workpiece **10** (fig. 3).

Regarding claim 4, the anode **27** is recessed below the O-ring **37** and is "forced into contact with wafer **10** by spring **41**" (col. 4, lines 3-14).

Regarding claim 9, the anode **27** includes a contact surface for contacting the surface of the workpiece **10** (fig. 3; col. 4, lines 3-14).

The apparatus of Cancelleri et al. differs from the instant invention because Cancelleri et al. does not disclose the following:

- a. The sealing member is yieldable and is adapted to bevel against the surface of the workpiece, as recited in claim 3.
- b. The rim portion is adapted to splay outward when the sealing member deforms, as recited in claim 6.

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- c. When the sealing member splays outward, the sealing member makes contact with the surface of the microelectronic workpiece along an internal side surface of the rim portion, as recited in claim 7.

Hsieh et al. disclose an apparatus for securing workpieces such as semiconductor wafers during electrochemical processing. The apparatus comprises an electrical contact **19** and multiple O-rings **5** and **9** for sealing and protecting the electrode **19** from the electrolyte (col. 5, line 45 to column 6, line 25). The O-rings **5** and **9** are deformed to "provide an effective seal" (col. 6, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the seal of Cancelleri et al. to use a deformable (yieldable) seal as taught by Hsieh et al. because the deformable seal of Hsieh et al. is capable of forming an effective seal.

Regarding the limitations recited in claims 3, 6 and 7, the limitations recite intended uses of the device. Depending on the applied forces, a deformable seal is capable of splaying outward during contact. Furthermore, when an O-ring is deformed, the contact surface is changed by the deformation, and is therefore capable of having a surface other than the outer surface of the non-deformed seal contacting the surface of the workpiece.

5. Claims 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (U.S. Pat. No. 5,447,615).

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Regarding claim 3, Ishida discloses an apparatus for plating semiconductor wafers comprising a contact **17** for providing an electrically conductive path between the assembly and the workpiece and a peripheral member **13** having a sealing portion **14** (figs. 3, 6A and 6B). The sealing portion **14** is made of an elastic material and is adapted to prevent plating of the contacts (col. 4, lines 37-40; col. 5, lines 63-65). The sealing portion has an outer surface corresponding the claimed rim portion (fig. 6A).

Regarding claim 8, the sealing portion **14** extends from the main portion of the peripheral member **13** in a bellows-like geometry, i.e., the narrower cross-section at sealing portion **14** would be capable of yielding before the remainder of the peripheral member **13** (figs. 3 and 6A).

Regarding claim 9, the electrical contact **17** has a contact surface for contacting the workpiece **U** (fig. 6B).

The apparatus of Ishida differs from the instant invention because Ishida does not disclose that the rim portion is adapted to bevel against the surface of the workpiece, as recited in claim 3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made that the sealing portion **14** of Ishida would be capable of beveling when contacting the surface of the workpiece because of the geometry of the sealing portion and the material it comprises. The sealing portion is an elastic material, which is capable of deformation, and the forces, as depicted in the arrows of Figures 6A and 6B show that the force of contacting the with the workpiece **U** could deform the sealing

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portion in a beveled manner, i.e., the sealing portion could be deformed at an oblique angle.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 3 and 9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-72 of copending Application No. 09/823,948. Although the conflicting claims are not identical, they are not patentably distinct from each other because the contact assembly claimed in the copending application is capable of performing the intended use recited in the instant claims.

The copending application recites a contact assembly having a plurality of electrically conductive contact members and an elastomeric seal molded onto the lip region of a shield, which prevents the electroplating solution from contacting the contact

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members (claim 1). The elastomeric seal would be capable of beveling upon contact with the workpiece.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 3 and 5-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,461,494. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method recited in the patent requires an apparatus having the limitations recited in the instant claims.

US '494 claims a method of selecting a contact assembly having at least one electrical contact and a yieldable sealing member having a bellows wall structure and a rim portion that splays outward when engaged with the workpiece (claims 1-5).

9. Claims 3 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-39 of U.S. Patent No. 6,309,524. Although the conflicting claims are not identical, they are not patentably distinct from each other because the apparatus claimed in the copending patent is capable of performing the intended use recited in the instant claims.

10. Claims 3 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No.

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5,985,126. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims are capable of performing the intended use recited in the instant claims.

11. Claims 3 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No.

6,274,013. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented invention is capable of performing the intended use recited in the instant claims.

12. Claims 3 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No.

5,980,706. Although the conflicting claims are not identical, they are not patentably distinct from each other because the apparatus recited in the reference is capable of performing the intended use recited in the instant claims.

13. Claims 3 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No.

6,080,291. Although the conflicting claims are not identical, they are not patentably distinct from each other because the apparatus recited in the patent are capable of performing the intended use recited in the instant claims.

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 5,437,777 (Kishi) and U.S. Pat. No. 5,429,733 disclose apparatuses having sealing members protecting the contacts from the electroplating solution.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (703) 305-0180. The examiner can normally be reached on Monday-Friday from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

blm
June 9, 2003